

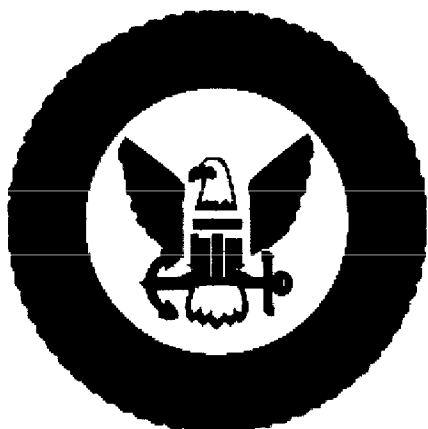
N61165.AR.004013
CNC CHARLESTON
5090.3a

COMPLETION REPORT INTERIM MEASURE FOR SOLID WASTE MANAGEMENT UNIT 25
(SWMU 25) WITH TRANSMITTAL CNC CHARLESTON SC
11/22/1999
NAVFAC SOUTHERN



COMPLETION REPORT

INTERIM MEASURE FOR
SWMU 25
NAVAL BASE CHARLESTON
CHARLESTON, SC



Prepared for:

DEPARTMENT OF THE NAVY
SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
CHARLESTON SC



Prepared by:

SOUTH CAROLINA RESEARCH AUTHORITY
Environmental Enterprise Group
1899 North Hobson Avenue, Bldg. 30
North Charleston, SC 29405-2106

November 17, 1999



DEPARTMENT OF THE NAVY

SOUTHERN DIVISION

NAVAL FACILITIES ENGINEERING COMMAND

P.O. BOX 190010

2155 EAGLE DRIVE

NORTH CHARLESTON, S.C. 29419-9010

5090/11

Code 18B1

22 November, 1999

Mr. John Litton, P.E.
Director, Division of Hazardous and Infectious Waste Management
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Subj: SUBMITTAL OF FINAL COMPLETION REPORT FOR SWMU 25 INTERIM
MEASURE

Dear Mr. Litton,

The purpose of this letter is to submit the Final Completion Report for SWMU 25 Interim Measure at Naval Base Charleston. The Completion Report is submitted to fulfill the requirements of condition II.F.3(b) of the RCRA Part B permit issued to the Navy by the South Carolina Department of Health and Environmental Control and U.S. Environmental Protection Agency.

We request that the Department and the EPA review the report and file for future reference. If you should have any questions, please contact Amy Daniel or myself at (803) 743-9985 and (803) 820-5525 respectively.

Sincerely,

A handwritten signature in black ink, appearing to read "M. A. Hunt".

M.A.HUNT, P.E.
BRAC Environmental Coordinator
BRAC Division

Encl: Final SWMU 25 Interim Measure Completion Report

Copy to:
SCDHEC (3)
USEPA (Dann Spariosu)
SOUTHNAVFACENGCOM (Matthew Hunt)
CSO Naval Base Charleston (Amy Daniel)



1899 North Hobson Avenue
North Charleston, SC 29405-2106
TEL (843) 202-8000
FAX (843) 202-8001
<http://www.eeg-scra.org>

November 17, 1999
Ser: 074

Delphinus Engineering (Al Stoll)
93 Monte Sano Drive
Hanahan, SC 29406

Re: Completion Report for Charleston Naval Complex (CNC) Solid Waste Management Unit (SWMU) 25.

South Carolina Research Authority (SCRA), Environmental Enterprise Group was contracted to generate a Completion Report for SWMU 25 per purchase requisition No. CHNPO9922. The enclosed report documents the actions performed at SWMU 25.

Questions or information concerning this report should be addressed to Alan Moyer at (843) 202-8064 or Jed Heames at 202-8060.

Respectfully,

E.R. Dearhart
SCRA, Vice-President
Environmental Enterprise Group

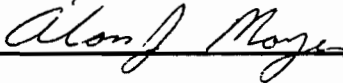
**COMPLETION REPORT
Interim Measure for
SWMU 25
Naval Base Charleston
Charleston, SC**

Engineering Branch Head:



Date: 11-18-99

Prepared By:



Date: 11/17/99

Site work for this Interim Measure was completed by SUPSHIP, Environmental Detachment Charleston. This report is being submitted by South Carolina Research Authority (SCRA) Environmental Enterprise Group (EEG) established as a result of the US Navy's privatization of SUPSHIP Environmental Detachment Charleston on 13 September 1999.

**DOCUMENT GENERATED BY:
SOUTH CAROLINA RESEARCH AUTHORITY
Environmental Enterprise Group
1899 NORTH HOBSON AVENUE
NORTH CHARLESTON, SC 29405**

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
Table of Contents.....	i
List of Appendices.....	ii
Acronyms, Abbreviations, and Symbols	iii
1. Introduction	1
1.1 Installation Restoration Program	1
1.1.1 Naval Base Charleston Installation Restoration Program.....	1
1.2 Interim Measures	1
1.3 Solid Waste Management Unit 25	1
1.4 SWMU 25 Interim Measure	2
2. Interim Measure Execution	3
2.1 Actions Required by Interim Measure Work Plan	3
2.2 SWMU 25 Interim Measure Execution Summary.....	3
2.3 SWMU 25 Interim Measure Conclusion.....	3
2.4 Observations Noted	3
2.5 Plan Modifications and Justification.....	3
3. Sampling	4
3.1 Sampling Evolution and Results.....	4
4. Waste Generation.....	4
4.1 Hazardous Waste	4
4.2 Non-Hazardous waste.....	4
5. Interim Measure Outcome	4
5.1 Site Conditions Following Completion of Work	4

APPENDICES

Appendix A	Figures.....	A-1
Appendix B	Letter of Record	B-1
Appendix C	Sampling Documentation	C-1
Appendix D	Shipping Manifests.....	D-1
Appendix E	Photographs	E-1

ACRONYMS, ABBREVIATIONS and SYMBOLS

AOC	Area of Concern
CMS	Corrective Measures Study
DERP	Defense Environmental Restoration Program
DET	Environmental Detachment Charleston
DON	Department of The Navy
IM	Interim Measure
IR	Installation Restoration
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
PPM	Parts Per Million
SARA	Superfund Amendments and Reauthorization Act
SOUTHDIV	Southern Division Naval Facilities Engineering Command
SUPSHIP	Supervisor of Shipbuilding, Conversion, and Repair
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
USN	United States Navy
VOC	Volatile Organic Compounds

1. INTRODUCTION

1.1 INSTALLATION RESTORATION PROGRAM The purpose of the Department of The Navy (DON) Installation Restoration (IR) Program is to identify, assess, characterize, and clean up or control contamination from past hazardous waste disposal operations and hazardous material spills at Navy and Marine Corps activities. The Defense Environmental Restoration Program (DERP) is codified in the Superfund Amendments and Reauthorization Act (SARA) Section 211 (10 USC 2701). The IR Program is a component of DERP.

1.1.1 Naval Base Charleston IR Program At Naval Base Charleston, a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) was prepared which divided the Naval Base into zones and identified Solid Waste Management Units (SWMU) and Areas of Concern (AOC) within each zone. The RFA evaluated each SWMU and AOC and determined which sites required further investigation. Based on the RFA, a RCRA Facility Investigation (RFI) Work Plan has been or is being prepared for each zone containing SWMU and AOC requiring further investigation. On completion of the RFI for each zone, a RFI report will be prepared for that zone. The RFI reports will identify SWMU and AOC containing wastes requiring remediation. Eventually, Corrective Measures Studies (CMS) will be prepared to determine the best means of remediating each site.

1.2 INTERIM MEASURES Interim Measures (IM) performed as part of the IR Program are intended to eliminate sources of environmental contamination or limit the spread of environmental contaminants prior to the completion of the RFI CMS.

1.3 SWMU 25 Solid Waste Management Unit 25 is the site of a former electroplating facility associated with Building 44 which is located in Zone E of the former Charleston Naval Complex. The electroplating facility occupied two rooms in the northwest portion of Building 44 which connected to an annex. The electroplating facility was bordered on the north by Building 5, on the south by Building 44, on the east by Avenue B, and on

the west by Hobson Avenue. The location of SWMU 25 is provided as Figure A-1 of Appendix A.

In 1997, the Environmental Detachment Charleston (DET) was tasked with the demolition of the Building 44 electroplating facility. This removal action is documented in the Completion Report titled "Process Closure/Demolition for SWMU 25 (Building 44 Annex)," dated June 30, 1997. During Building 44 demolition it was determined electrical vault 7A could not be removed as planned. After removal of the fluid that filled the vault, it was discovered that seven high voltage electrical cables traversed through the vault. Since the status of the cables could not be verified by South Carolina Electric & Gas or shipyard electrical drawings, no attempt was made to cut the cables and vault 7A removal was deferred.

In 1998, the DET was tasked with performing an investigation to determine/delineate the extent of contamination at SWMU 25. This investigation, documented in SWMU 25 Investigation Report dated September 14, 1998, revealed vault 7A was a source of chromium contamination. The fluids and inside surfaces of the vault were stained yellow with chromium (see pictures in Appendix E).

1.4 SWMU 25 INTERIM MEASURE During the interval between the RFI and the completion of the CMS, it was decided by Southern Division Naval Facilities Engineering Command (SOUTHDIV) that an IM would be performed by Supervisor of Shipbuilding, Conversion, and Repair (SUPSHIP), United States Navy (USN), Portsmouth Va. Environmental Detachment Charleston. The scope of this IM was limited to excavation and disposal of electrical vault 7A and associated electrical cable conduit. This IM may not necessarily be the final remedial action taken at this site. This IM is consistent with the ultimate cleanup of SWMU 25 and is not intended to circumvent the public participation process inherent within environmental cleanup under RCRA authority. The letter of record for the approval of SWMU 25 IM work plan is provided as Appendix B.

2. INTERIM MEASURE EXECUTION

2.1 ACTIONS REQUIRED BY INTERIM MEASURE WORK PLAN The following actions were required by the interim measure work plan:

- Remove any fluid from within the electrical vault
- Remove electrical service vault 7A and associated cable conduit
- Obtain an information sample of the soil beneath the vault
- Dispose of the electrical cables
- Remove any encountered groundwater
- Backfill the excavation

2.2 SWMU 25 INTERIM MEASURE EXECUTION SUMMARY The execution of this IM consisted of removing vault 7A and associated cables. The excavation began in July 1999. Debris removed from this site was characterized as hazardous and disposed in a certified Subtitle C landfill.

2.3 SWMU 25 INTERIM MEASURE CONCLUSION This IM effectively removed the chromium contaminated concrete electrical vault 7A and approximately 109 feet of associated concrete cable conduit. Figure A-2 identifies the extent of conduit removal.

2.4 OBSERVATIONS NOTED The bottom of electrical vault 7A had an approximate 12 inch thick layer of deposits from the past plating operations of the plating shop. This layer is believed to be the source of chromium contamination that existed in electrical vault 7A. No groundwater was encountered during vault 7A removal.

2.5 PLAN MODIFICATIONS AND JUSTIFICATION After the completion of actions required by this interim measure, SOUTHDIV issued a statement of work to include installing an asphalt cap over the soil where Building 44 once stood.

3. SAMPLING

3.1 SAMPLING EVOLUTIONS AND RESULTS One discrete soil sample was collected in the center of the excavation following vault 7A removal for informational purposes. Laboratory analytical results are provided as Appendix C of this report. These analyses consisted of RCRA Metals, TCLP metals, and Appendix IX volatile organic compounds (VOC). The sample results show only lead exceeded the soil to groundwater Soil Screening Levels (SSL's) listed in Table 6.2, Volume II of the November 1997 Draft Zone E RFI Report. Sample results and SSL's are listed below.

Metal Analysis	Result (ppm)	Draft Zone E RFI SSL (ppm)
Mercury	0.0477	1.04
Silver	1.38	15.3
Arsenic	2.07	14.6
Barium	25.7	824
Cadmium	3.5	3.76
Chromium	849	1,800,000
Lead	108	* 39.6
Selenium	0.313	2.60

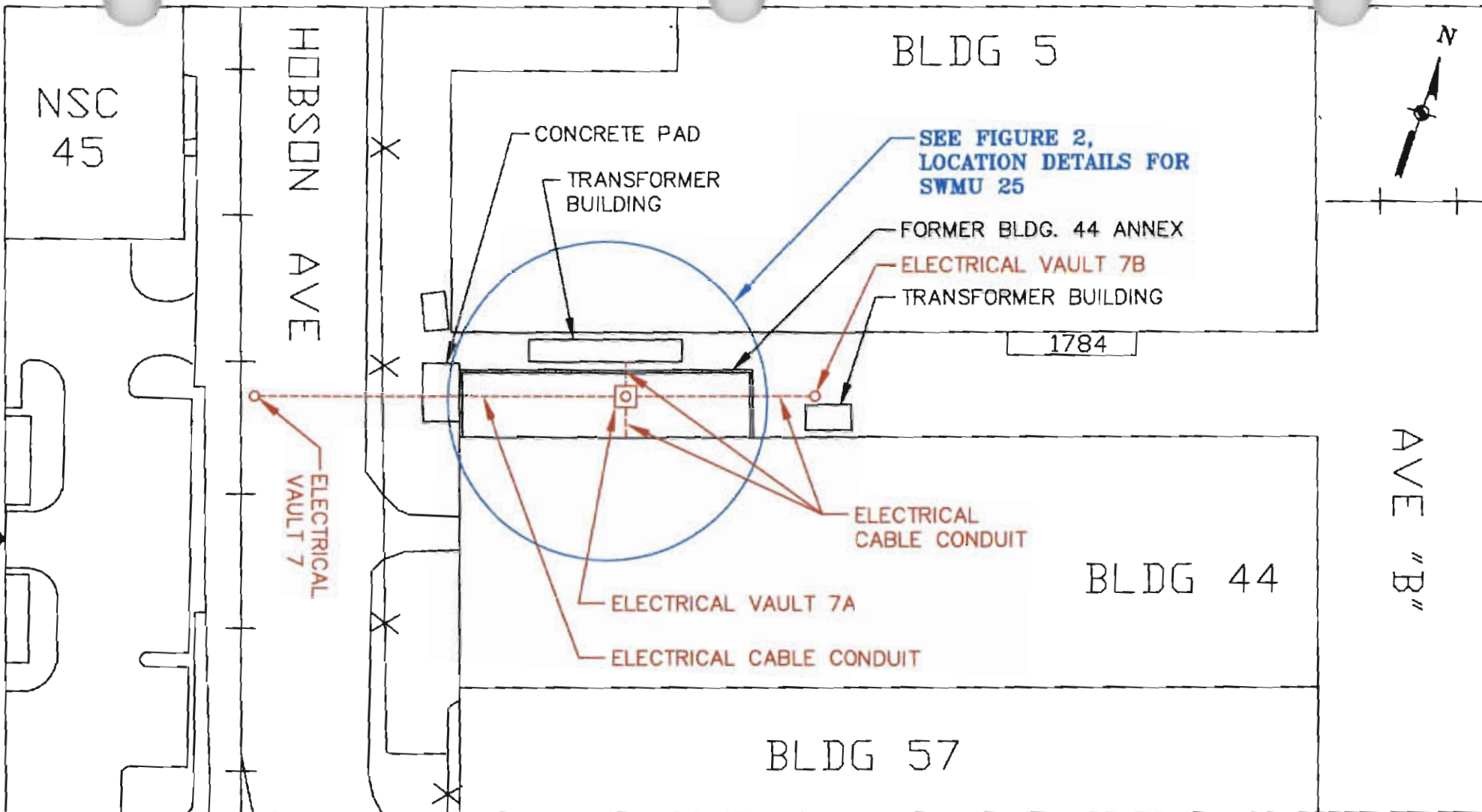
* Table 6.2 recognizes lead SSL as Background, Table 5.2 of the Draft RFI lists the mean concentration for lead in Zone E as 39.6 ppm

4.0 WASTE GENERATION

4.1 HAZARDOUS WASTE A total of 50,360 pounds of chromium contaminated debris was disposed of to a permitted Subtitle C landfill. This debris was disposed of at Safety-Kleen Inc. Pinewood facility located in Pinewood, South Carolina. Waste manifests are provided as Appendix D.

4.2 NON-HAZARDOUS WASTE No non-hazardous waste was generated during the accomplishment of this interim measure.

FIGURES



GRAPHIC SCALE (FEET)



ENVIRONMENTAL ENTERPRISE GROUP
1899 NORTH HOBSON AVENUE - BUILDING 30
NORTH CHARLESTON, SOUTH CAROLINA 29405-2106

FIGURE 1
SITE LAYOUT DRAWING OF SWMU 25

SIZE A	DATE: 21 OCT 1999	PREPARED BY: J.I. BROWNLEE	REV -
SCALE: -	SHEET: A-1		

BLDG 5

TRANSFORMER BLDG

FORMER BLDG.
44 ANNEX

54'-0"

4'-0"

11'-0"

40'-0"

ELECTRICAL VAULT 7A



BLDG 44

LEGEND

--- REMOVED ELECTRICAL
CABLE CONDUIT



ENVIRONMENTAL ENTERPRISE GROUP
1899 NORTH HOBSON AVENUE - BUILDING 30
NORTH CHARLESTON, SOUTH CAROLINA 29405-2106

FIGURE 2
LOCATION DETAILS FOR SWMU 25

SIZE A	DATE: 21 OCT 1999	PREPARED BY: J.I. BROWNLEE	REV —
SCALE: NONE	SHEET: A-2		



600 ... Street
Columbia, SC 29201-1708

COMMISSIONER:
Douglas E. Bryant

BOARD:
John H. Burris
Chairman

William M. Hull, Jr., MD
Vice Chairman

Roger Leaks, Jr.
Secretary

Mark B. Kent

Lyndi C. Mosteller

Jan K. Smith

Madney L. Grandy

July 7, 1999

Henry Shepard II, P.E.
Caretaker Site Office
NAVFACENGCOM, Southern Division
P. O. Box 190010
North Charleston, SC 29419-9010

Re: Interim Measures Work Plan for SWMU 25, Dated April 9, 1999, Located in
Zone E Charleston Naval Complex SCO 170 022 560, Revision 1.0, Received
June 29, 1999.

Dear Mr. Shepard:

The South Carolina Department of Health and Environmental Control (Department) has reviewed the above referenced Revision 1.0 Interim Measures Work Plan (6/29/99) according to applicable State and Federal Regulations, and the Charleston Naval Complex Hazardous Waste Permit, effective September 17, 1999. Based on this review the referenced Interim Measure Work Plan is approved.

Should you have any questions, please contact me at (803) 896-4185 or Mihir Mehta at (803) 896-4088 or Paul Bergstrand at (803) 896-4016.

Sincerely,

David M. Scaturo, P.E., P.G., Manager
Corrective Action Engineering Section
Bureau of Land & Waste Management

cc: Paul Bergstrand, Hydrogeology
Rick Richter, Trident EQC
David Dodds, SOUTHDIV
Dann Spariosa, EPA Region IV

SAMPLING **DOCUMENTATION**



GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: August 04, 1999

Page 1 of 2

Sample ID : 99SPORT0237-1
Lab ID : 9907929-01
Matrix : Soil
Date Collected : 07/27/99
Date Received : 07/27/99
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Mercury	J	0.0470	0.00221	0.100	mg/kg	1.0	RMJ	08/02/99	1207	154827	1
Copper		1380	65.5	455	ug/kg	2.0	MBL	08/03/99	1702	154580	2
Arsenic		2070	414	455	ug/kg	2.0					
Barium		25700	49.1	455	ug/kg	2.0					
Cadmium		3500	34.6	455	ug/kg	2.0					
Chromium		849000	69.2	455	ug/kg	2.0					
Lead		108000	143	455	ug/kg	2.0					
Selenium	J	313	246	455	ug/kg	2.0					

The following prep procedures were performed:

Mercury	ARD	07/30/99	1930	154827	3
TRACE	AJM	08/02/99	1000	154580	3

M = Method	Method-Description
M 1	EPA 7471A
M 2	EPA 6010B
M 3	EPA 3005

Notes.

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

~ indicates that the analyte was not detected at a concentration greater than the detection limit.

QC indicates that a quality control analyte recovery is outside of specified acceptance criteria.





GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106
Contact: Mr. Bill Hiers
Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: August 04, 1999

Page 2 of 2

Sample ID : 99SPORT0237-1

M = Method

Method-Description

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By





GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: August 04, 1999

Page 1 of 2

Sample ID : 99SPORT0237-1
Lab ID : 9907929-02
Matrix : TCLP
Date Collected : 07/27/99
Date Received : 07/27/99
Priority : Routine
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Metals Analysis											
Mercury	U	ND	0.000350	0.0200	mg/l	1.0	RMJ	08/02/99	1704	154861	1
Mercury	J	25.3	7.30	50.0	ug/l	10.	JLS	07/31/99	1925	154870	2
Arsenic	U	ND	45.1	50.0	ug/l	10.					
Barium		235	5.10	50.0	ug/l	10.					
Cadmium	J	37.0	4.40	50.0	ug/l	10.					
Chromium		260	5.60	50.0	ug/l	10.					
Lead	J	37.8	15.9	50.0	ug/l	10.					
Selenium	U	ND	27.1	50.0	ug/l	10.					

The following prep procedures were performed:

Mercury	ARD	07/30/99	1845	154861	3
TCLP Prep for Metals	JJ	07/29/99	1550	154562	3

M = Method	Method-Description
M 1	EPA 7470
M 2	EPA 6010A
M 3	EPA 3005

Notes:

The qualifiers in this report are defined as follows:

ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

M indicates that a quality control analyte recovery is outside of specified acceptance criteria.





GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc. NPWC00197

Report Date: August 04, 1999

Page 2 of 2

Sample ID : 99SPORT0237-1

M = Method

Method-Description

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By



PWC00197

CHAIN OF CUSTODY RECORD

99079291

General Engineering Laboratories, Inc.
2040 Savage Road
Charleston, South Ca. 29407
P.O. Box 30712
Charleston, South Carolina 29417
(803) 556-8171

Page 1 of 1

Client Name/Facility Name SPORTENVDETHASN				SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods																	Use F or P in the boxes to indicate whether sample was filtered and/or preserved <div style="font-size: 2em; font-weight: bold;">41669</div> Remarks		
Collected by/Company SPORTENVDETHASN				# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	VOC - Specify Method required	PCB's	Cyanide	Coliform - specify type	TGAP	METALS	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables			
SAMPLE ID	DATE	TIME	WELL		SOIL	COMP	GRAB																
99SPORT237-1	7/27/99	0900	X		X	2																	
99SPORT237-2	7/27/99	0910	X		X	2																	
<div style="position: absolute; top: 0; right: 0; bottom: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; transform: rotate(45deg); opacity: 0.5;"></div>																							
Remark: Sample preserved to <4°C																							

Relinquished by:	Date:	Time:	Received by:	Relinquished by:	Date:	Time:	Received by:
Michael P. ...	7/27/99	1020	7/27/99	1554	...
Relinquished by:	Date:	Time:	Received by lab by:	Date:	Time:	Remarks:	
Deptano ...	7/27/99	1554	Francis	7/27/99	1554		

White = sample collector

Yellow = file

Pink = with report



GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: August 17, 1999

Page 1 of 3

Sample ID : 99SPORT0254-01
Lab ID : 9908412-01
Matrix : Soil
Date Collected : 08/12/99
Date Received : 08/12/99
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Volatile Organics											
<i>Appendix IX Volatiles - 55 items</i>											
1,1,2-Tetrachloroethane	U	ND	0.200	1.00	ug/kg	1.0	JEB	08/13/99	1422	155813	1
1,1,1-Trichloroethane	U	ND	0.100	1.00	ug/kg	1.0					
1,1,2,2-Tetrachloroethane	U	ND	0.600	1.00	ug/kg	1.0					
1,1,2-Trichloroethane	U	ND	0.300	1.00	ug/kg	1.0					
1,1-Dichloroethane	U	ND	0.100	1.00	ug/kg	1.0					
1,1-Dichloroethylene	U	ND	0.300	1.00	ug/kg	1.0					
1,2,3-Trichloropropane	U	ND	0.400	1.00	ug/kg	1.0					
1,2-Dibromo-3-chloropropane	U	ND	0.400	1.00	ug/kg	1.0					
1,2-Dibromoethane	U	ND	0.200	1.00	ug/kg	1.0					
1,2-Dichlorobenzene	U	ND	0.500	1.00	ug/kg	1.0					
1,2-Dichloroethane	U	ND	0.200	1.00	ug/kg	1.0					
1,2-Dichloropropane	U	ND	0.200	1.00	ug/kg	1.0					
1,2-cis-Dichloroethylene	U	ND	0.100	1.00	ug/kg	1.0					
1,2-trans-Dichloroethylene	U	ND	0.100	1.00	ug/kg	1.0					
2-Butanone	U	ND	3.20	5.00	ug/kg	1.0					
2-Hexanone	U	ND	2.80	5.00	ug/kg	1.0					
4-Methyl-2-pentanone	U	ND	3.10	5.00	ug/kg	1.0					
Acetone	U	ND	10.3	10.3	ug/kg	1.0					
Acetonitrile	U	ND	1.00	25.0	ug/kg	1.0					
Acrolein	U	ND	4.60	10.0	ug/kg	1.0					
Acrylonitrile	U	ND	3.90	10.0	ug/kg	1.0					
Allyl Chloride	U	ND	0.400	5.00	ug/kg	1.0					
Benzene	U	ND	0.500	1.00	ug/kg	1.0					
Bromoform	U	ND	0.300	1.00	ug/kg	1.0					
Carbon Disulfide	U	ND	0.300	5.00	ug/kg	1.0					
Carbon Tetrachloride	U	ND	0.500	1.00	ug/kg	1.0					
Chlorobenzene	U	ND	0.300	1.00	ug/kg	1.0					





GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: August 17, 1999

Page 2 of 3

Sample ID : 99SPORT0254-01

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Chlorodibromomethane	U	ND	0.200	1.00	ug/kg	1.0					
Chloroethane	U	ND	0.300	1.00	ug/kg	1.0	JEB	08/13/99	1422	155813	1
Chloroform	U	ND	0.100	1.00	ug/kg	1.0					
Chloroprene	U	ND	10.0	20.0	ug/kg	1.0					
Dibromomethane	U	ND	0.200	1.00	ug/kg	1.0					
Dichlorobromomethane	U	ND	0.100	1.00	ug/kg	1.0					
Dichlorodifluoromethane	U	ND	1.20	1.20	ug/kg	1.0					
Ethylbenzene	U	ND	0.300	1.00	ug/kg	1.0					
n-Butyl Alcohol	U	ND	6.30	10.0	ug/kg	1.0					
Methacrylonitrile	U	ND	0.900	5.00	ug/kg	1.0					
Methyl Bromide	U	ND	0.300	1.00	ug/kg	1.0					
Methyl Chloride	U	ND	0.200	1.00	ug/kg	1.0					
Methyl Iodide	U	ND	0.600	5.00	ug/kg	1.0					
Methyl Methacrylate	U	ND	0.400	5.00	ug/kg	1.0					
Methylene Chloride	U	ND	1.40	1.40	ug/kg	1.0					
Propionitrile	U	ND	3.40	10.0	ug/kg	1.0					
Styrene	U	ND	0.300	1.00	ug/kg	1.0					
Tetrachloroethylene	U	ND	0.400	1.00	ug/kg	1.0					
Toluene	U	ND	0.900	1.00	ug/kg	1.0					
Trichloroethylene		5.82	0.300	1.00	ug/kg	1.0					
Trichlorofluoromethane	U	ND	0.300	1.00	ug/kg	1.0					
Vinyl Acetate	U	ND	2.10	5.00	ug/kg	1.0					
Vinyl chloride	U	ND	0.400	1.00	ug/kg	1.0					
Xylenes (TOTAL)	U	ND	0.700	2.00	ug/kg	1.0					
bis(2-Chloromethylethyl)ether	U	ND	5.09	10.0	ug/kg	1.0					
cis-1,3-Dichloropropylene	U	ND	0.200	1.00	ug/kg	1.0					
trans-1,3-Dichloropropylene	U	ND	0.300	1.00	ug/kg	1.0					
trans-1,4-Dichloro-2-butene	U	ND	0.500	5.00	ug/kg	1.0					

The following prep procedures were performed:

Volatiles 8260 High Level

JEB 08/11/99 0800 155813 2





GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: August 17, 1999

Page 3 of 3

Sample ID : 99SPORT0254-01

Surrogate Recovery	Test	Percent %	Acceptable Limits
Bromofluorobenzene	APP 9 VOA-8260B	77.0	(73.0 - 129.)
Dibromofluoromethane	APP 9 VOA-8260B	93.4	(66.0 - 117.)
Toluene-d8	APP 9 VOA-8260B	87.2	(73.0 - 122.)

M = Method	Method-Description
1	EPA 8260B
2	EPA 5035

Notes:

The qualifiers in this report are defined as follows:


ND indicates that the analyte was not detected at a concentration greater than the detection limit.

J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).

U indicates that the analyte was not detected at a concentration greater than the detection limit.

* indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.


Reviewed By



GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: August 17, 1999

Page 1 of 3

Sample ID : 99SPORT0254-02
Lab ID : 9908412-02
Matrix : GroundH2O
Date Collected : 08/12/99
Date Received : 08/12/99
Priority : Rush
Collector : Client

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Volatile Organics											
<i>Appendix IX Volatiles - 55 items</i>											
1,2-Tetrachloroethane	U	ND	0.300	1.00	ug/l	1.0	JEB	08/13/99	1320	155956	1
1,1,1-Trichloroethane	U	ND	0.200	1.00	ug/l	1.0					
1,1,2,2-Tetrachloroethane	U	ND	0.500	1.00	ug/l	1.0					
1,1,2-Trichloroethane	U	ND	0.400	1.00	ug/l	1.0					
1,1-Dichloroethane	U	ND	0.400	1.00	ug/l	1.0					
1,1-Dichloroethylene	U	ND	0.700	1.00	ug/l	1.0					
1,2,3-Trichloropropane	U	ND	0.500	1.00	ug/l	1.0					
1,2-Dibromo-3-chloropropane	U	ND	0.600	1.00	ug/l	1.0					
1,2-Dibromoethane	U	ND	0.400	1.00	ug/l	1.0					
1,2-Dichlorobenzene	U	ND	0.400	1.00	ug/l	1.0					
1,2-Dichloroethane	U	ND	0.200	1.00	ug/l	1.0					
1,2-Dichloropropane	U	ND	0.200	1.00	ug/l	1.0					
1,2-cis-Dichloroethylene	U	ND	0.700	1.00	ug/l	1.0					
1,2-trans-Dichloroethylene	U	ND	0.700	1.00	ug/l	1.0					
2-Butanone	U	ND	5.90	10.0	ug/l	1.0					
2-Hexanone	U	ND	3.20	5.00	ug/l	1.0					
4-Methyl-2-pentanone	U	ND	1.60	5.00	ug/l	1.0					
Acetone	U	ND	3.70	5.00	ug/l	1.0					
Acetonitrile	U	ND	15.6	25.0	ug/l	1.0					
Acrolein	U	ND	8.90	10.0	ug/l	1.0					
Acrylonitrile	U	ND	8.20	10.0	ug/l	1.0					
Allyl Chloride	U	ND	2.10	5.00	ug/l	1.0					
Benzene	U	ND	0.300	1.00	ug/l	1.0					
Bromoform	U	ND	0.400	1.00	ug/l	1.0					
Carbon Disulfide	U	ND	1.80	5.00	ug/l	1.0					
Carbon Tetrachloride	U	ND	0.200	1.00	ug/l	1.0					
Chlorobenzene	U	ND	0.300	1.00	ug/l	1.0					





GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: August 17, 1999

Page 2 of 3

Sample ID : 99SPORT0254-02

Parameter	Qualifier	Result	DL	RL	Units	DF	Analyst	Date	Time	Batch	M
Chlorodibromomethane	U	ND	0.300	1.00	ug/l	1.0					
Chloroethane	U	ND	0.300	1.00	ug/l	1.0	JEB	08/13/99	1320	155956	1
Chloroform	U	ND	0.700	1.00	ug/l	1.0					
Chloroprene	U	ND	0.100	20.0	ug/l	1.0					
Dibromomethane	U	ND	0.200	1.00	ug/l	1.0					
Dichlorobromomethane	U	ND	0.400	1.00	ug/l	1.0					
Dichlorodifluoromethane	U	ND	1.20	5.00	ug/l	1.0					
Tolylbenzene	U	ND	0.300	1.00	ug/l	1.0					
Butyl Alcohol	U	ND	36.0	50.0	ug/l	1.0					
Methacrylonitrile	U	ND	3.80	5.00	ug/l	1.0					
Methyl Bromide	U	ND	0.300	1.00	ug/l	1.0					
Methyl Chloride	U	ND	0.200	1.00	ug/l	1.0					
Methyl Iodide	U	ND	5.20	10.0	ug/l	1.0					
Methyl Methacrylate	U	ND	3.90	5.00	ug/l	1.0					
Methylene Chloride	J	1.73	1.20	5.00	ug/l	1.0					
Propionitrile	U	ND	2.60	10.0	ug/l	1.0					
Styrene	U	ND	0.200	1.00	ug/l	1.0					
Tetrachloroethylene	U	ND	0.700	1.00	ug/l	1.0					
Toluene	U	ND	0.500	1.00	ug/l	1.0					
Trichloroethylene	U	ND	0.600	1.00	ug/l	1.0					
Trichlorofluoromethane	U	ND	1.70	5.00	ug/l	1.0					
Vinyl Acetate	U	ND	1.80	5.00	ug/l	1.0					
Vinyl chloride	U	ND	0.400	1.00	ug/l	1.0					
Xylenes (TOTAL)	U	ND	1.10	2.00	ug/l	1.0					
bis(2-Chloromethylethyl)ether	U	ND	3.70	10.0	ug/l	1.0					
cis-1,3-Dichloropropylene	U	ND	0.300	1.00	ug/l	1.0					
trans-1,3-Dichloropropylene	U	ND	0.300	1.00	ug/l	1.0					
trans-1,4-Dichloro-2-butene	U	ND	2.80	5.00	ug/l	1.0					

Surrogate Recovery	Test	Percent %	Acceptable Limits
Bromofluorobenzene	APP 9 VOA-8260B	83.9	(73.0 - 129.)
Bromofluoromethane	APP 9 VOA-8260B	102.	(66.0 - 117.)
Toluene-d8	APP 9 VOA-8260B	87.1	(73.0 - 122.)



GENERAL ENGINEERING LABORATORIES

Meeting today's needs with a vision for tomorrow.

Client: Supervisor of Ship Building & Conversion
SUPSHIP-Portsmouth Detachment-Env.
1899 North Hobson Ave.
North Charleston, South Carolina 29405-2106

Contact: Mr. Bill Hiers

Project Description: SUPSHIP-Portsmouth Detachment

cc: NPWC00197

Report Date: August 17, 1999

Page 3 of 3

Sample ID : 99SPORT0254-02

Surrogate Recovery	Test	Percent %	Acceptable Limits
--------------------	------	-----------	-------------------

M = Method	Method-Description
------------	--------------------

M 1	EPA 8260B
-----	-----------

Notes:

qualifiers in this report are defined as follows:

- ND indicates that the analyte was not detected at a concentration greater than the detection limit.
- J indicates presence of analyte at a concentration less than the reporting limit (RL) and greater than the detection limit (DL).
- U indicates that the analyte was not detected at a concentration greater than the detection limit.
- * indicates that a quality control analyte recovery is outside of specified acceptance criteria.

This data report has been prepared and reviewed
in accordance with General Engineering Laboratories
standard operating procedures. Please direct
any questions to your Project Manager, Elise Hanson at 843-556-8171.

Reviewed By

Page 1 of 1

99084121.

Client Name/Facility Name SPORTEN V DET CHASN							SAMPLE ANALYSIS REQUIRED (x) - use remarks area to specify specific compounds or methods															Use F or P in the boxes to indicate whether sample was filtered and/or preserved PRESERVED @ 4°C 41964 Remarks			
Collected by/Company SPORTEN V DET CHASN																									
SAMPLE ID	DATE	TIME	WELL	SOIL	COMP	GRAB	# OF CONTAINERS	pH, conductivity	TOC/DOC	TOX	Chloride, Fluoride, Sulfide	Nitrite/Nitrate	APC - Specify Method required	METALS - specify	Pesticide	Herbicide	Total Phenol	Acid Extractables	B/N Extractables	PCB's	Cyanide	Coliform - specify type			
SPORT 254-01	8/12/99	0900	X	X	X	X	3						X												NAC60253003802
SPORT 254-02	8/12/99	0900	X	X	X	X	3						X												NAC6025T0038
[Large diagonal line across the table]																									
Relinquished by: Mike Wheeler			Date: 8/12/99		Time: 0950		Received by: W.R. Hiers, Jr.			Relinquished by: W.R. Hiers, Jr.			Date: 8/12/99		Time: 1318		Received by: _____								
Relinquished by: _____			Date: _____		Time: _____		Received by lab by: _____			Date: 8/12/99			Time: 1318		Remarks: _____										

White = sample collect r **Yell w** = file **Pink** = with rep rt

SHIPPING **MANIFESTS**



South Carolina Department of Health and Environmental Control

Bureau of Solid & Hazardous Waste Mgt.
2600 Bull Street, Columbia, SC 29201
Phone: (803) 896-4000
Emergency & Holidays: (803) 253-6488

PLEASE PRINT or TYPE (Form designed for use on elite [12-pitch] typewriter)

Form Approved OMB No. 2050-0039 Expires 9-30-99

FORM HAZARDOUS WASTE MANIFEST

1. Generator's U.S. EPA ID No.

SC 017002256013523

Manifest
Document No.

2. Page 1
of 1

Information in the shaded areas is not
required by Federal law, but is by State law.

3. Generator's Name and Mailing Address

SOUTH DIV NAV FAC ENG COM, Caretaker Site Office, PO Box
190010, N. Charleston, SC 29419-9010

4. Generator's Phone (843) 743-6777

5. Transporter 1 Company Name
Safety-Kleen (TG), Inc.

6. U.S. EPA ID Number

SC D 9 8 7 5 7 4 6 4 7

7. Transporter 2 Company Name

8. U.S. EPA ID Number

9. Designated Facility Name and Site Address

Safety-Kleen (Pinewood), Inc.
Rt 1 Box 255

10. U.S. EPA ID Number

Pinewood, South Carolina 29125 SC D 0 7 0 3 7 5 9 8 5

11. U.S. DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers
No. Type

13. Total Quantity

14. Unit
Wt/Vol

15. Waste Number

a. RQ, Hazardous Waste Solid, N.O.S., 9, NA3077,
PG III (chromium)

0 0 1 C M

1 6 Y

b.

c.

15. Special Handling Instructions and Additional Information

WQ# 237961

24 hour emergency contact: Mike Wheeler

(843) 743-6777

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and the laws of the State of South Carolina.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name

RICHARD G. NIELSEN

Signature

Richard G. Nielsen

Month Day Year
10 8 0 9 9 9

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Lennon Glover

Signature

Lennon Glover

Month Day Year
10 8 0 9 9 9

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

Discrepancy Indication Space

a. 21820 lbs. c. lbs.
b. lbs. d. lbs.

20. Facility Owner or Operator; Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Jim Justice

Signature

Jim Justice

Month Day Year
10 8 0 9 9 9



South Carolina Department of Health and Environmental Control

9201H401

Bureau of Solid & Hazardous Waste Mgt.
2600 Bull Street, Columbia, SC 29201
Phone: (803) 456-4000
Emergency & Holidays: (803) 253-6488

PLEASE PRINT or TYPE (Form designed for use on elite [12-pitch] typewriter)

Form Approved OMB No. 2050-0039 Expires 9-30-99

FORM HAZARDOUS WASTE MANIFEST

1. Generator's U.S. EPA ID No.

S C 0 1 7 0 0 2 2 5 6 0 1 3 4 4 0

Manifest
Document No.2. Page 1
of 1Information in the shaded areas is not
required by Federal law, but is by State law.

3. Generator's Name and Mailing Address

SOUTHDIYNAVAFACENGCOM, Caretaker Site Office, PO Box
190010, N. Charleston, SC 29419-9010

4. Generator's Phone (843) 743-6777

5. Transporter 1 Company Name
Safety-Kleen (T6), Inc.

6. U.S. EPA ID Number

S C 0 9 8 7 5 7 4 6 4 7

7. Transporter 2 Company Name

8. U.S. EPA ID Number

9. Designated Facility Name and Site Address

10. U.S. EPA ID Number

Safety-Kleen (Pinewood), Inc.
Rt 1 Box 255
Pinewood, South Carolina 29125

S C D 0 7 0 3 7 5 9 8 5

11. U.S. DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)

12. Containers
No. Type

13. Total Quantity

14. Unit
Wt/Vol

15. Waste Number

a. RQ, Hazardous Waste Solid, N.O.S., 9, NA3077,
PG III (chromium)

0 0 1 C M

1 B Y

D 0 0 7

b.

c.

Additional Descriptions for Materials Listed Above

a. P W - 0 1 3 4 3 - 4 1 1 5

c. - - - - -

b. - - - - -

d. - - - - -

15. Special Handling Instructions and Additional Information

W0# 237200

24 hour emergency contact: Mike Wheeler

(843) 743-6777

Public reporting burden for this collection of information is estimated to
average: 37 minutes for generators, 15 minutes for transporters, and 10
minutes for treatment storage and disposal facilities. This includes time
for reviewing instructions, gathering data, and completing and reviewing
the form. Send comments regarding the burden estimate, including
suggestions for reducing this burden, to Chief, Information Policy Branch,
PM-223, U.S. Environmental Protection Agency, 401 M St., S.W.,
Washington, D.C. 20460, and to the Office of Information and Regulatory
Affairs, Office of Management and Budget, Washington, D.C. 20503.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified,
packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and
the laws of the State of South Carolina.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically
practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human
health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method
that is available to me and that I can afford.

Printed/Typed Name

Lillie D. Frierson

Signature

Lillie D. Frierson

Month Day Year

07.30.99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name

Lennon Glover

Signature

Lennon Glover

Month Day Year

07.30.99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Month Day Year

Discrepancy Indication Space

a. 28540 lbs. c. lbs.
b. lbs. d. lbs.

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name

Signature

PHOTOGRAPHS



Sampling fluid from electrical vault 7A during 1998 investigation



Electrical cables traversing through electrical vault



Excavation of vault



Backfilling



After excavation and backfill



Final restoration (asphalt)